

APPENDIX B

PROPOSED AMENDMENTS TO THE CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL ENGINES AND VEHICLES

State of California
AIR RESOURCES BOARD

**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 2004 AND SUBSEQUENT MODEL
HEAVY-DUTY DIESEL ENGINES AND VEHICLES**

Adopted: December 12, 2002
Amended: [Insert date of amendment]

NOTE: The proposed amendments are indicated by underline for additions and ~~strikeout~~ for deletions compared to the adopted test procedures. Only those portions of the existing language containing the proposed modifications are included. All other portions remain unchanged and are indicated by the symbol “* * * * *” for reference. A complete set of the adopted test procedures (without the proposed amendments) is available at <http://www.arb.ca.gov/regact/levhdg02/levhdg02.htm> .

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL ENGINES AND VEHICLES

The following provisions of Subparts A, I, and N, Part 86, Title 40, Code of Federal Regulations, as adopted or amended by the U.S. Environmental Protection Agency on the date set forth next to the 40 CFR Part 86 section listed below, and only to the extent they pertain to the testing and compliance of exhaust emissions from heavy-duty diesel engines and vehicles, are adopted and incorporated herein by this reference as the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," except as altered or replaced by the provisions set forth below.

Part I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS.

Subpart A - General Provisions for Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles, Light-Duty Trucks, and Heavy-Duty Engines, and for 1985 and Later Model Year New Gasoline-Fueled, Natural Gas-Fueled, Liquefied Petroleum Gas-Fueled and Methanol-Fueled Heavy-Duty Vehicles.

1. General Applicability. [86.xxx-1]

A. Federal Provisions.

1. **§86.001-1** October 6, 2000.

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2. **§86.005-1** October 6, 2000

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2.52.6 Subparagraph (f) *Optional procedures for determining exhaust opacity.* [No change.]

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B. California provisions.

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11. Emission standards for diesel heavy-duty engines and vehicles. [§86.xxx-11]

A. Federal provisions.

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B. California provisions.

1. Urban Bus Standards.

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2. Optional HDE and Urban Bus Standards.

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3. Formaldehyde Standards.

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4. Requirements for Dual- and Bi-Fuel Engines.

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5. Standards for Medium-Duty Engines.

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6. Heavy-Duty Diesel Engine Idling Requirements.

6.1 Engine Shutdown System. Except as provided in subsection 6.2, all 2007 and subsequent model-year heavy-duty diesel engines shall be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation if the vehicle is stopped, the transmission set to “neutral” or “park”, and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation if the vehicle is stopped and the transmission is set to “neutral” or “park.” The engine shutdown system must be tamper-resistant and non-adjustable. A warning signal, such as a light or sound indicator inside the vehicle cabin, may be used to alert the driver 30 seconds prior to engine shutdown. The driver may reset the engine shutdown system timer by momentarily changing the position of the accelerator, brake, clutch or other mechanism within 30 seconds after the warning signal activation. Once reset, the engine shutdown system shall restart the engine shutdown

sequence described in this paragraph above, and shall continue to do so until the engine shuts down or the vehicle is driven. The engine shutdown system may only be overridden if the engine is operating in power take-off mode or if the engine is equipped with an alternative idle emission reducing device listed in subsection 6.3.1 below. Power take-off is defined as a specific engine or transmission setting that allows the vehicle's engine to operate in order to provide power to on-board ancillary devices.

6.2 Exempt Vehicles. Heavy-duty diesel engines to be used in buses as defined in the California Vehicle Code §§ 233, 612 and 642, school buses as defined in the California Vehicle Code § 545, and motorhomes as defined in the Health and Safety Code 18010(a) shall be exempted from these requirements.

6.3 Use of Alternative Idle Emission Reducing Technologies. In addition to the engine shutdown system, all 2007 and subsequent model-year heavy-duty diesel engines may be equipped with and use the following alternative idle emission reducing devices, as defined and listed below in 6.3.1, 6.3.2, 6.3.3 and 6.3.4 of this subsection:

6.3.1 Automatic Stop-Start System. An automatic stop-start system automatically stops and restarts the engine as needed to maintain any of the following conditions: vehicle cabin air temperature, engine oil temperature, or engine battery charge control. The system must also satisfy the following requirements:

(1) Vehicle Cabin Air Temperature Control. Only heavy-duty diesel engines placed in vehicles with a sleeper berth may have an automatic stop-start system equipped with vehicle cabin air temperature control, for maintaining vehicle cabin and sleeper berth air temperature during extended idling events. During the initial start-up of the system, the engine may continuously run at idle to meet the sleeper berth thermostat setting or run at idle for a maximum of 1800 seconds, whichever occurs first (or "initial idling event"). Thereafter, the system shall cycle the engine off and on, as needed to provide cabin air temperature control. However, during any consecutive 1800-second time period following the "initial idling event," the engine must not idle more than a total of 900 seconds during ambient temperatures between 25°F and 95°F. The ambient temperature shall be measured with a temperature sensor that has minimal impact from other heat sources such as from solar radiation, the vehicle's engine, the engine's exhaust pipe and any other heat source on-board the vehicle.

(2) Engine Oil Temperature Control. An available control option for all heavy-duty diesel engines for maintaining engine oil temperature. The system may operate the engine when the engine oil

reaches a temperature of 60°F or less and must shut down the engine when the engine oil temperature reaches 80°F or less.

(3) Battery Charge Control. An available control option for all heavy-duty diesel engines for maintaining engine battery voltage. The system may operate the engine when the engine battery charge is depleted below design limits and will shut down the engine when the engine battery reaches its normal state of charge. To prevent tampering with the battery charge control, the system shall shut down the engine within 1800 seconds of idling operation and may restart the engine, if needed for battery charging, 30 seconds after engine shutdown. The engine shutdown sequence described in this paragraph shall be repeated continuously if the engine is restarted for the purpose of battery charge control.

6.3.2 Auxiliary Power Unit. The auxiliary power unit must comply with applicable California emission standards and test procedures for its fuel type and power category. In addition, diesel-fueled auxiliary power units shall be equipped with a verified Level 3 in-use strategy for particulate matter control (see Title 13, California Code of Regulations, §§ 2700 to 2710, adopted May 16, 2003) or the exhaust from the auxiliary power unit shall be routed directly into the vehicle engine's exhaust pipe, upstream of the diesel particulate matter aftertreatment device.

6.3.3 Fuel-Fired Heaters. Fuel-fired heaters must comply with the applicable California emission standards and test procedures as specified in the Low Emission Vehicle program requirements found in section 1961(a)(15), title 13, California Code of Regulations, or in Part I.E.1.13 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," adopted August 5, 1999, as last amended December 12, 2002. However, the specified requirement that limits fuel-fired heaters from being operated above 40°F does not apply.

6.3.4 Other Idle Reducing Technologies. Other technologies that will reduce idling emissions may also be used, including the use of batteries, fuel cells, power inverter/chargers for on-shore AC electrical power, and other technologies that do not produce emissions. The use of such technologies is subject to advance Executive Officer approval and must be as stringent in reducing idling emissions as the technologies described in subsection 6.3.1, 6.3.2 and 6.3.3 above.

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21. Application for certification. [§86.xxx-21]

A. Federal provisions.

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A. B. California provisions.

1. For 2004 and subsequent model-year medium-duty ultra-low emission and super-ultra-low emission vehicles and engines not powered exclusively by diesel fuel, the manufacturer shall submit projected California sales and fuel economy data two years prior to certification.

2. For 2007 and subsequent model-year heavy-duty diesel engines, the manufacturer must provide a statement in the application for certification that the heavy-duty diesel engine for which certification is being requested will comply with the automatic engine shutdown requirements to control idle emissions as specified in subparagraph 11.B.6.1. If the heavy-duty diesel engine for which certification is being requested is exempt, per the provisions in 11.B.6.2, or incorporates any of the alternative idle emission reducing technologies contained in subparagraphs 11.B.6.3, then the manufacturer must also provide a statement in its application for certification so stating.

3. For heavy-duty diesel engines equipped with an automatic stop-start system specified in subparagraph 11.B.6.3.1., the manufacturer must provide a statement in the application for certification that the heavy-duty diesel engine for which certification is being requested will comply with the requirements for vehicle cabin air temperature control, engine oil temperature, and/or engine battery charge control, described in subparagraph 11.B.6.3.1, when the automatic stop-start system is operating. The manufacturer must maintain records at the manufacturer's facility that contain all test data, engineering analyses, and other information which provide the basis for the compliance statement, where such information exists. The manufacturer must provide such information to the Executive Officer within 30 days upon request.

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